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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/004,054      | 10/19/2001  | Thomas G. Krajewski  | D-2778/WOD          | 6676             |

7590 03/01/2004  
William O'Driscoll - 12-1  
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EXAMINER

KOVALICK, VINCENT E

| ART UNIT | PAPER NUMBER |
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2673

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DATE MAILED: 03/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/004,054

Applicant(s)

KRAJEWSKI ET AL.

Examiner

Vincent E Kovalick

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 19 October 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-16 and 55-69 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7, 55-58 and 60 is/are rejected.
- 7) ☒ Claim(s) 6, 8-16, 59 and 61-69 is/are objected to.
- 8) ☒ Claim(s) 17-54 and 70-137 are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Response to Patent Application*

1. This Office Action is in response to Applicant's Patent Application, Serial No. 10/004,054, with a File Date of October 19, 2001.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 7, 55 and 60 rejected under 35 U.S.C. 103(a) as being unpatentable over Mussler et al. (USP 4,710,758) taken with Richardson et al. (USP 5,459,458).

Relative to claims 1 and 55, Mussler et al. **teaches** an Automatic Touch Screen Calibration apparatus (col. 1, lines 14-68 and col. 2, lines 1-3); Mussler et al. further **teaches** a touch-screen display system for generating pixel coordinate estimates responsive to a user touching a display screen, and apparatus for calibrating said touch-screen display system as an integral part of real-time generation of said pixel coordinate estimates without needing said user to assist in the calibration effort by touching predetermined locations on said display screen (col. 2, lines 9-45). Mussler et al. **does not teach** a processor responsive to digital signals from said touch-screen display system to generate calibrated pixel coordinate estimates.

Mussler et al teaches an automatic touch screen calibration method.

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Richardson et al. **teaches** a user operated data input device (col. 1, lines 42-67); Richardson et al. further **teaches** a processor responsive to digital signals from said touch-screen display system to generate calibrated pixel coordinate estimates (col. 7, lines 26-41).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to provide to the device as taught by Mussler et al. the feature as taught by Richardson et al. in order to provide the means to process the digital signals generated by the touch screen and in turn generate the calibrated pixel coordinate estimates.

Regarding claims 7 and 60, Mussler et al. further **teaches** said apparatus wherein said digital signals comprise a first digital signal and a second digital signal and a third digital signal (col. 2, lines 25-45).

4. Claims 2, 4-5, 56 and 58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mussler et al. taken with Richardson et al. as applied to claims 1 and 55 respectively in item 3 hereinabove, and further in view of Colgan et al. (USP 6,529,189).

Relative to claims 2 and 56, Mussler et al. taken with Richardson et al. **does not teach** said apparatus wherein said digital signals are derived from voltage levels sampled from bus bars of analog resistive screens within said touch-screen display system.

Mussler et al. taken with Richardson et al. teaches an automatic touch screen calibration apparatus with a processor for generating calibrated pixel coordinate estimates.

Colgan et al. **teaches** a resistive analog touch screen (col. 2, lines 46-54); Colgan further **teaches teach** said apparatus wherein said digital signals are derived from voltage levels sampled from bus bars of analog resistive screens within said touch-screen display system (col. 1, lines 19-28).

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It would have been obvious to a person of ordinary skill in the art at the time of the invention to provide to the device as taught by Mussler et al. taken with Richardson et al. the feature as taught by Colgan et al. in order to provide the means to capture the digital signals from which the calibrated pixel coordinate estimates are derived.

Regarding claims 4 and 58, Colgan et al. further **teaches** said apparatus wherein said analog resistive screens are powered on and powered off by drives that apply voltage reference levels to said bus bars of said analog resistive screens (col. 1, lines 19-28).

As to claim 5, Colgan et al. further **teaches** said apparatus wherein said drivers are controlled by said processors (col. 1, lines 12-15).

5. Claims 3 and 59 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mussler et al. taken with Richardson et al. in view of Colgan et al. as applied to claims 2 and 56 respectively in item 4 hereinabove, and further in view of Feldman (USP 6,424,094).

Regarding claims 3 and 59, Mussler et al. taken with Richardson et al. in view of Colgan et al. **does not teach** said apparatus where said voltage levels are converted to said digital signals by a set of analog-to-digital converters within said touch-screen display system.

Mussler et al. taken with Richardson et al. in view of Colgan et al. teaches an automatic touch screen calibration apparatus with a processor for generating calibrated pixel coordinate estimates from digital signals derived from voltage levels sampled from a bus bar of an analog resistive display screen.

Feldman **teaches** an electroluminescent display with integrated resistive touch screen (col. 3, lines 40-52); Feldman further **teaches** said apparatus where said voltage levels are converted to

said digital signals by a set of analog-to-digital converters within said touch-screen display system (col. 6, lines 26-42 and 56-69 and Fig. 7, and col. 7, lines 1-12 and Fig. 8).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to provide to the apparatus as taught by Mussler et al. taken with Richardson et al. in view of Colgan et al. the feature as taught by Feldman in order to put in place the means to convert the analog signals generated from the touch-screen to digital signals for processing by the system processor.

*Allowable Subject Matter*

6. Claims 6, 8-16 and 59, 61-69 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Relative to claims 6 and 59, the major difference between the teachings of the prior art of record (Mussler et al. Richardson et al. and Colgan et al.) and that of the instant invention is that said prior art of record **does not teach** a touch-screen display apparatus configured to sample at least eight independent digital signals corresponding to at least eight independent voltage levels on said bus bars of said analog resistive screens and corresponding to various combinations of said analog resistive screens being powered on, powered off, touched, and not touched.

Regarding claims 8 and 60, the major difference between the teachings of the said prior art of record and that of the instant invention is that said prior art of record **does not teach** a touch-screen display apparatus wherein said first digital signal corresponds to a voltage level sampled from a bus bar of a second analog resistive screen of said touch-screen display system that is not

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powered on and is touching a first analog resistive screen of said touch-screen display system that is powered on.

Regarding claims 15 and 68, the major difference between the teachings of the said prior art of record and that of the instant invention is that said prior art of record **does not teach** a touch-screen display apparatus wherein a processor is responsive to said calibrated pixel coordinate estimates to generate corrected calibrated pixel coordinate estimates due to any mismatch between spatial locations of said bus bars of said analog resistive screens and edges of active areas of said analog resistive screens.

As to claims 16 and 69, the major difference between the teachings of the said prior art of record and that of the instant invention is that said prior art of record **does not teach** a touch-screen display apparatus wherein a processor is responsive to said calibrated pixel coordinate estimates to generate corrected calibrated pixel coordinate estimates due to any mismatch between spatial locations of edges of active areas of said analog resistive screens and active areas of a display of said touch-screen display system.

### *Conclusion*

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

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| U. S. Patent No. | 6,016,140 | Blouin et al. |
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| U. S. Patent No. | 5,283,559 | Kalendra et al. |
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| U. S. Patent No. | 4,220,815 | Gibson et al. |
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*Responses*

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vincent E Kovalick whose telephone number is 703 306-3020. The examiner can normally be reached on Monday-Thursday 7:30- 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on 703 305-4938. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 306-0377.

  
Vincent E. Kovalick

  
BIPIN SHALWALA  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600